

WHAT IS CLAIMED IS:

1. A backing plate which is used for a sputtering apparatus for forming a thin film on a substrate, and to which a target is bonded, the backing plate comprising:

cooling means for ensuring a uniform temperature distribution by eliminating temperature unevenness in a surface of the target caused by applying different sputtering powers to portions of the target to obtain a film having a uniform film thickness.

2. The backing plate of claim 1, wherein the cooling means includes a cooling medium flow passage having a branch for feeding the cooling medium to a periphery of the backing plate and a flow rate of the cooling medium is controlled so as to obtain almost uniform distribution of temperature in the target.

3. The backing plate of claim 2, wherein the backing plate is formed by electron beam welding of a member having a groove as a cooling medium flow passage and a member for covering the grooves.

4. The backing plate of claim 2, wherein the backing plate is formed by laser beam welding of a member having a groove as a cooling medium flow passage and a member for covering the grooves.

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5. The backing plate of claim 1, wherein the target is formed in a rectangular plate shape and a higher sputtering power than that applied to a central portion of the target is applied to four corner portions of the target.

6. The backing plate of claim 5, wherein an inlet of the cooling medium flow passage is provided at a position in the backing plate which position corresponds to at least one of the four corner portions of the target.

7. A sputtering method for forming a thin film on a substrate using a target, the method comprising the steps of:  
applying different sputtering powers to portions of the target to obtain a film having a uniform film thickness; and  
cooling the target to ensure a uniform temperature distribution by eliminating temperature unevenness in a surface of the target caused by applying the different sputtering powers to the portions of the target.

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